

Claims

1. Holding device (1) with a holding container (2) for a holding vessel, in particular a blood sample collecting tube, wherein the holding container (2) surrounds a holding chamber (7) with a container wall (6), and in the direction of a longitudinal axis (8) comprises a proximal and a distal end (9, 10) spaced apart from one another, whereby the container wall (6) is delimited by an inner surface (11) facing the holding chamber (7) and an outer surface (12) facing away therefrom, with a needle holder (4) for a needle arrangement (14) which can be secured thereon, in particular a double-ended cannula needle (5), whereby the needle holder (4) in the holding chamber (7) of the holding container (2) is designed to be displaceable relative to the latter from a position of use in the region of the proximal end (9) to a disposal position in the direction of the distal end (10), with a first adjusting device (15) for the needle holder (4) for the displacement from the position use into the disposal position, with a cover element (3) for the needle arrangement (14) securable to the needle holder (4) in the disposal position of the needle holder (4), wherein the cover element (3) in the position of use of the needle holder (4) is arranged adjacent to the latter on the side facing away from the proximal end (9) in the holding chamber (7) and is secured by an, if necessary, detachable locking device (16) between the cover element (3) and the holding container (2) in the position of use relative to the latter, and a further adjusting device (17) is arranged between the needle holder (4) and the cover element (3), whereby on releasing the locking device (16) the cover element (3) is adjusted by the additional adjusting device (17) in the direction of the distal end (10) of the holding container (2).
2. Holding device according to claim 1, wherein the first adjusting device (15) is in the form of an elastically deformable spring element (18), in particular a compression spring.
3. Holding device according to claim 1 or 2, wherein the additional adjusting device (17) is in the form of an elastically deformable spring element (19), in particular a compression spring.
4. Holding device according to claim 3, wherein the additional adjusting device (17)

is designed to expand conically from the needle holder (4) up to the cover element (3).

5. Holding device according to one of the preceding claims, wherein the first and the additional adjusting device (15, 17) are in the form of a one-piece component.

6. Holding device according to one of the preceding claims, wherein the displacement of the needle holder (4) and the cover element (3) into the disposal position is performed simultaneously.

7. Holding device according to one of the preceding claims, wherein the cover element (3) is formed by a roughly disc-shaped main body (21) in a plane (20) perpendicular to the longitudinal axis.

8. Holding device according to one of the preceding claims, wherein the cover element (3) in the region of the longitudinal axis (8) has an opening (22) for feeding through a portion of the cannula (5).

9. Holding device according to claim 8, wherein in the region of the opening (22) a component (23) is arranged for suctioning or absorbing liquid.

10. Holding device according to one of the preceding claims, wherein the locking device (16) comprises at least one, preferably two, diametrically opposite locking elements (25) and locking recesses (26) cooperating therewith.

11. Holding device according to claim 10, wherein the locking element or elements (25) are arranged on the disc-shaped main body (21) of the cover element (3).

12. Holding device according to one of the preceding claims, wherein on the main body (21) of the cover element (3), several, preferably four, locking elements (25) are arranged distributed evenly around the circumference and in the holding container (2) several, preferably two, diametrically opposite locking recesses (26) are arranged to form the locking device (16).

13. Holding device according to one of claims 10 to 12, wherein the locking recesses (26) are arranged in the container wall (6) of the holding container (2).
14. Holding device according to one of claims 10 to 13, wherein the locking recesses (26) penetrate the container wall (6) of the holding container (2).
15. Holding device according to one of claims 10 to 14, wherein the locking element or elements (25) project in radial direction, from the inner surface (11) to the outer surface (12) of the container wall (6), only partially into the locking recesses (26).
16. Holding device according to one of claims 10 to 15, wherein the locking element or elements (25) is or are spring-connected to the disc-shaped main body (21) of the cover element (3).
17. Holding device according to one of claims 10 to 16, wherein the locking element or elements (25) is or are arranged on a holding arm (57) projecting from the main body (21) of the cover element (3) in the direction of the needle holder (4) or the proximal end (9).
18. Holding device according to one of claims 10 to 17, wherein the locking element or elements (25) is or are arranged in the region of the outer circumference of the cover element (3).
19. Holding device according to one of the preceding claims, wherein on the region of the main body (21) facing the proximal end (9) at least one first centring element (51) for the additional adjusting device (17) is arranged.
20. Holding device according to one of the preceding claims, wherein between the cover element (3) and the inner surface (11) of the container wall (6) at least one first guiding arrangement (27) is provided, which is aligned in the direction of the longitudinal axis (8) of the holding container (2).

21. Holding device according to claim 20, wherein the guiding arrangement (27) extends at least over the entire displacement path (58) of the cover element (3) between its maintenance position in the region of the proximal end (9) and its cover position in the region of the distal end (10).

22. Holding device according to claim 20 or 21, wherein the first guiding arrangement (27) is formed by at least one guiding groove (28) indented in the container wall (6) and running in the direction of the longitudinal axis (8) and at least one guiding extension (29) on the cover element (3) engaging with the guiding groove (28).

23. Holding device according to claim 22, wherein several guiding grooves (28) are arranged evenly distributed around the circumference of the holding container (2).

24. Holding device according to claim 22 or 23, wherein a groove base of the guiding groove (28) over its longitudinal extension relative to the longitudinal axis (8) runs parallel to the latter.

25. Holding device according to one of the preceding claims, wherein the diametrically opposite locking devices (16) viewed in the direction of the longitudinal axis (8) are arranged around the circumference of the holding container (2) symmetrically between the guiding grooves (28).

26. Holding device according to one of the preceding claims, wherein between the holding container (2) and the cover element (3) a further guiding arrangement (52) is provided.

27. Holding device according to one of the preceding claims, wherein in order to form at least one part of a guiding arrangement (27, 52) a partial section (53, 54) of the inner surface (11) of the container wall (6) is designed as a guide track (55, 56) and is aligned over its longitudinal extension relative to the longitudinal axis (8) in parallel to the latter.

28. Holding device according to claim 27, wherein the partial section (53, 54) of the

inner surface (11) or the inner surface (11) is designed to be cylindrical relative to the longitudinal axis (8).

29. Holding device according to claims 20 to 25, wherein the first guiding arrangement (27) is formed by the bearing or cooperation of the locking element (25) on the guide track (55) arranged on the holding arm (57).

30. Holding device according to claim 29, wherein the locking element or elements (25) lie with a predeterminable bearing force aligned radially in the direction of the guide track (55).

31. Holding device according to claim 30, wherein the bearing force is almost equal over the entire displacement path (58) of the cover element (3).

32. Holding device according to one of claims 26 to 28, wherein the additional guiding arrangement (52) in the region of the holding container (2) comprises at least one guide element (59), such as a web, a rib, arranged on the inner surface (11) thereof and projecting in the direction of the longitudinal axis (8) and projecting over the inner surface (11).

33. Holding device according to claim 32, wherein the guide element or elements (59) is or are aligned in the direction of the longitudinal axis (8).

34. Holding device according to claims 32 or 33, wherein two guide elements (59) arranged next to one another around the circumference form a portion of the additional guiding arrangement (52).

35. Holding device according to claim 34, wherein several guide elements (59) are provided, distributed evenly in pairs around the circumference, in particular arranged in the form of a cross.

36. Holding device according to one of claims 26 to 28 and 32 to 35, wherein the additional guiding arrangement (52) comprises at least one further guide track (56) which is

arranged between the two adjacently arranged guide elements (59).

37. Holding device according to one of claims 26 to 28 and 32 to 36, wherein the additional guiding arrangement (52) in the region of the needle holder (4) comprises at least one guide extension (60) cooperating with the guide element or elements (59).

38. Holding device according to claim 37, wherein the guide extension or extensions (60) is or are arranged respectively between the two adjacent guide elements (59).

39. Holding device according to one of the preceding claims, wherein the first and the additional guide tracks (55, 56) arranged in the form of a cross relative to one another are offset relative to one another in circumferential direction by 90°.

40. Holding device according to one of the preceding claims, wherein at least one guide element (59) projects into at least one partial cut-out (62) formed in the circumferential region of the cover element (3) or is in engagement with the latter.

41. Holding device according to one of the preceding claims, wherein the container wall (6) in the plane (20) aligned perpendicular to the longitudinal axis (8) has a circular cross section, and an external diameter (30) of the disc-shaped main body (21) corresponds approximately to an inner diameter (31) of the holding chamber (7) in this plane or is slightly smaller than the latter.

42. Holding device according to one of the preceding claims, wherein the holding container (2) is designed to be open in the region of the distal end (10) and closed in the region of the proximal end (9) partially by an end wall (13).

43. Holding device according to claim 42, wherein the end wall (13) has an opening (32) in the region of the longitudinal axis (8) which corresponds in its inner cross sectional dimension (33) approximately to an outer cross sectional dimension (34) of the needle holder (4).

44. Holding device according to claim 42 or 43, wherein in the end wall (13) there is a holding chamber (35) for the first adjusting device (15) or the one-piece component formed by the adjusting devices (15, 17).

45. Holding device according to one of the preceding claims, wherein the needle holder (4) is formed by a roughly sleeve-shaped supporting body (36).

46. Holding device according to claim 45, wherein on the sleeve-shaped supporting body (36) in the plane (20) aligned perpendicular to the longitudinal axis (8) at least one support element (37) projecting radially outwards over the carrier body is arranged.

47. Holding device according to claim 46, wherein on the support element (37) the adjusting devices (15, 17) are supported at the end regions facing one another.

48. Holding device according to claim 47, wherein at least one of the end regions is secured firmly to the support element (37).

49. Holding device according to claim 46, wherein the support element (37) in a one piece design of the adjusting device (15, 17) is arranged in a transition region thereof and is secured thereto.

50. Holding device according to claim 46, wherein the support element (37) is designed as a support element (48) running around the circumference and projecting over the supporting body (36) radially.

51. Holding device according to one of claims 45 to 50, wherein at the region of the support element (48) facing the proximal end (9) at least one first centring element (49) is arranged.

52. Holding device according to one of claims 45 to 51, wherein in the region of the needle holder (4) facing the distal end (10) a tubular depression (49) is arranged in the sleeve-shaped supporting body (36).

53. Holding device according to claims 45 to 52, wherein in the sleeve-shaped supporting body (36) a thread arrangement (43) is provided for the needle arrangement (14).

54. Holding device according to claim 53, wherein the thread arrangement (43) is aligned in such a way, that with an opposite arrangement and horizontal alignment of the releasable locking device (16) for the cover element (3) a tapering (45) on a cannula tip (44) is provided on an upper side of the cannula (5).

55. Holding device according to one of the preceding claims, wherein between the needle holder (4) and the holding container (2) an anti-rotational means (38) is arranged, which in the position of use of the needle holder (4) is in engagement and prevents a relative pivoting or rotation between the latter about the longitudinal axis (8).

56. Holding device according to one of the preceding claims, wherein the cover element (3) with the needle holder (4) located in the disposal position is secured in the region of the distal end (10) relative to the holding container (2) in its longitudinal movement in the direction of the longitudinal axis (8) by means of a locking device (39).

57. Holding device according to claim 56, wherein the locking device (39) comprises at least one retaining element (40) arranged on the holding container (2) and facing the distal end (10) and at least one locking element (41) cooperating therewith on the cover element (3).

58. Holding device according to claim 57, wherein the retaining element (40) is formed by a spring element of the container wall (6), which is designed at least over a portion of its longitudinal extension in the direction of the longitudinal axis (8) to project over the inner surface (11) in the direction of the longitudinal axis (8).

59. Holding device according to claim 57 or 58, wherein the retaining element or elements (40) are arranged in the region of the guiding arrangement (27), in particular in the guiding groove (28).

60. Holding device according to one of claims 55 to 59, wherein the locking device (39) comprises at least one stop element (42) for the cover element (3) arranged on the holding container (2) and facing the distal end (10).
61. Holding device according to claim 60, wherein the stop element or elements (42) are arranged in the region of the guiding arrangement (27), in particular in the guiding groove (28).
62. Holding device according to one of the preceding claims, wherein in the region of the distal end (10) of the holding container (2) on the latter at least one securing element (46) is arranged.
63. Holding device according to claim 62, wherein the securing element (46) is inserted into the holding container (7) and is locked onto the holding container (2).
64. Holding device according to one of claims 62 or 63, wherein the securing element (46) comprises a sleeve-shaped support element (63) and a flange-shaped step (64) connected therewith, which projects over the support element (63) in the direction away from the longitudinal axis (8).
65. Holding device according to one of claims 62 to 64, wherein on the sleeve-shaped support element (63) at least one positioning element (66) aligned in parallel direction to the longitudinal axis (8) is arranged, which projects over the support element (63) in the direction of the proximal end (9).
66. Holding device according to claim 65, wherein several, preferably four positioning elements (66) are provided distributed evenly around the circumference, in particular arranged in the form of a cross relative to one another.
67. Holding device according to one of the preceding claims, wherein the positioning element (66) projects into the additional guide track (56) arranged between the two adjacent guide elements (59).

68. Holding device according to one of the preceding claims, wherein in the disposal position the guide extension (60) of the needle holder (4) is supported at the end of the positioning element (66) facing the proximal end (9).

69. Holding device according to one of the preceding claims, wherein the locking device (39) comprises at least one retaining element (69) arranged on the securing element (46) and closer to the proximal end (9) and at least one locking element (25) on the cover element (3) interacting therewith, in particular the locking element (25) arranged on the holding arm (57).

70. Holding device according to one of the preceding claims, wherein the locking device (39) also comprises at least one stop element (68) for the cover element (3) arranged on the securing element (46) and facing the distal end (10).

71. Holding device according to one of the preceding claims, wherein in the disposal position an anti-rotational means (72) is in engagement between the securing element (46) and the cover element (3).